

SHANTI SWARUP BHATNAGAR PRIZE

For Science and Technology

in

Chemical Sciences

By

Dr. Akhila Kumar Sahoo



**School of Chemistry
University of Hyderabad
Hyderabad 500046, INDIA**



Shanti Swarup Bhatnagar Prize For Science and Technology

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH
HUMAN RESOURCE DEVELOPMENT GROUP
NEW DELHI
INDIA
2014

1. Name of the nominee in Full: **Akhila Kumar Sahoo**

(Both in English and Hindi) अखिल कुमार साहू

- 2.(a) Date and place of birth (Enclose certificate of the age duly attested) : **18 January 1972, Bhubaneswarr, Odisha, India**
- (b) Nationality : **Indian**
- (c) Gender: M/F : **Male**
- (d) Age as on 31st Dec 2014 : **42Years 11Months 13Days**

3. Address with Telephone / Mobile / Fax / e-mail:

(a) Official

Akhila Kumar Sahoo
Associate Professor
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(b) Residential Address:

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Telangana

(c) Mobile: +91-9908221898

**(d) E-mail: akhilchemistry12@gmail.com,
akhilkumar_s@yahoo.com**

4. Discipline under which to be considered (only one to be marked/ encircled): **Chemical Sciences**

(i) Biological (ii) **Chemical** (iii) Earth, Atmosphere, Ocean and Planetary (iv) Engineering
(v) Mathematical (vi) Medical and (vii) Physical Sciences

5. Nominee's field of specialization: **Organic Chemistry (Catalysis/ Reaction Development and Application)**

6. Academic Qualifications (Bachelor's Degree onwards):

S. No.	Degree	Subject	Class CGP marks	Year	University	Additional Particulars
1	B. Sc	Chemistry (Main), Physics and Mathematics	1 st class	1992	BJB College Utkal University Bhubaneswar Orissa	2 nd position
2	M. Sc.	Organic Chemistry	1 st class	1994	Utkal University Bhubaneswar Orissa	NA
3	PhD	Organic Chemistry	NA	2001	National Chemical Laboratory, Pune University, Pune	NA
4	Post-doctoral fellow	Organic Chemistry	NA	2002	RWTH-Aachen, GERMANY	
5	JSPS Post-doctoral fellow	Organic Chemistry	NA	2002-2004	Kyoto University Japan	JSPS-Fellow
6	Post-doctoral fellow	Organic Chemistry	NA	2004-2006	Kyoto University Japan	NA

Title of the PhD thesis and name of the guide:

[3+2]-Cycloaddition of Non-Stabilized Azomethine Ylides: Synthesis of Epiboxidine and Various X-azatricyclo[m.n.0.0^{a,b}]alkanes

Research Guide/ Supervisor: *Dr. Ganesh Pandey, National Chemical Laboratory, Pune, INDIA*

7. Date of joining the Institution (Designation & Scale): University of Hyderabad
28 December 2007 (Lecturer Rs. 8000-275-13500)

8. Positions held earlier (in chronological order):

S No	Designation	Period	Place of Employment	Scale of pay
1	Senior Research Scientist	November 2006-December 2007	Sai Advantium Pharma Limited Hyderabad, India	11 Lakhs/ annum
2	Lecturer	December 2007- January 2012	School of Chemistry University of Hyderabad Hyderabad, India	Rs. 8000-275- 13500 (then)
3	Assistant Professor	February 2012-December 2012	School of Chemistry University of Hyderabad Hyderabad, India	Rs. 15,600- 39,100 (AGP 6000) (then)
3	Associate Professor	January 2013-Present	School of Chemistry University of Hyderabad Hyderabad, India	Rs. 37,400- 67,000 (AGP 9000)

9. Details of CSIR Fellowship/ Associateship held, if any or from other sources/ agencies.

(Indicate dates of joining & leaving):

- Research Associate, DST, New Delhi, India. June 2001 to March 2002
- Senior Research Fellow, Council of Scientific and Industrial Research (CSIR), New Delhi, India. May 1998 to April 2001
- Junior research fellow, BRNS, DAE, Mumbai, India. August 1995- April 1998

10. (a) Significant foreign assignments:

S No	Period of visit		Institute/ country visited	Purpose of visit
	From	To		
1	30-10-2011	03-11-2011	Queensland University AUSTRALIA	Intl. Conference
2	11-1-2012	16-11-2012	IKCOC-12, Kyoto, JAPAN	Intl. Conference
3	28-06-2014	29-06-2014	CNRS, Gif-sur-Yvette, Paris, FRANCE	Delivered Lecture
4	29-06-2014	03-07-2014	University de Rennes, FRANCE	Intl. Conference

(b) Total time spent abroad during last five years: 16 days

11. Names, correspondence address (with email IDs) and broad area of specialization of 10 distinguished Scientists including five (5) in India in the area (As possible referees):

From Abroad:

Name	Complete Address (with designation & department)	Specialization	E-mail id
Prof. Dr. Pierre Dixneuf	Professor, Chemistry UMR 6226-CNRS-Université de Rennes1, Sciences Chimiques de Rennes Campus de Beaulieu Avenue du général Leclerc 35042 Rennes cedex, France	Organometallic Chemistry	pierre.dixneuf@univ-rennes1.fr
Prof. Tamejiro Hiyama	Professor of Research Development Initiative, Chuo University 1-13-27 Kasuga, Bunkyo-ku, Tokyo 112-8551, Japan	Organic Chemistry	thiyama@kc.chuo-u.ac.jp
Prof. Naoto Chatani	Professor, Chemistry Department of Applied Chemistry, Faculty of Engineering, Osaka University, 1-1 Yamadaoka, Suita, Osaka Prefecture 565-0871, Japan	Organic Chemistry	chatani@chem.eng.osaka-u.ac.jp
Prof. Hiroshi Shinokubo	Professor, Chemistry Department of Applied Chemistry, Graduate School of Engineering, Nagoya University Furo-cho, Chikusa-ku, Nagoya 464-8603, Japan	Organic Chemistry	hshino@apchem.nagoya-u.ac.jp
Prof. Lutz Ackermann	Dean of Research, Faculty of Chemistry, Göttingen Institut fuer Organische und Biomolekulare Chemie, Georg-August-Universität Göttingen Tammannstr. 2, 37077 Goettingen	Organic Chemistry	Lutz.Ackermann@chemie.uni-goettingen.de

From India:

Prof. Goverdhan Mehta	National Research Professor School of Chemistry University of Hyderabad Hyderabad 500 046	Organic Chemistry	gmehta43@gmail.com gmsc@uohyd.ernet.in
Prof. Amit Basak	Professor, Chemistry Head, School of Bioscience Indian Institute of Technology,	Organic Chemistry	absk@chem.iitkgp.ernet.in

	Kharagpur, India - 721302		
Dr. Pradeep Kumar	Head Division of Organic Chemistry National Chemical Laboratory Dr. Homi Bhaba Road Pune 411008	Organic Chemistry	pk.tripathi@ncl.res.in
Prof. Vishwakarma Singh	Professor Department of Chemistry Indian Institute of Technology Powai, Bombay 400 076	Organic Chemistry	vks@chem.iitb.ac.in
Prof. Kavirayani R. Prasad	Professor Department of Organic Chemistry Indian Institute of Science, Bangalore 560 012, India	Organic Chemistry	prasad@orgchem.iisc.ernet.in

12. (a) Significant contributions to science and/ or technology development by the nominee based on the work done in India during most part of last 5 years (in about 500 words). Specific reference is to be made to research papers published and patents taken in this context:

The sahuo research group is actively engaged in the development of new synthetic methods of broad potential. The group has made significant contribution in the exploration of transition-metal catalyzed novel organic transformations. Broadly, the Sahoo's research activity is focused on: i) the activation and functionalization of inert C–H bond in presence of transition-metal catalysts, ii) Lewis acid (Au) catalyzed cyclization/cycloisomerization of alkenes/alkynes/ynamides, iii) redox isomerization reactions, iv) design and construction of N-, and O-rich heterocycles for thermally stable insensitive energetic materials, and v) step-efficient synthesis of molecules of pharmaceutical importance.

(A) Remote C–H functionalization: Transition-metal catalyzed directing group (DG) assisted regioselective functionalization of ubiquitous C–H bond is a step-efficient and cost-effective method, provides rapid access to the construction of C–C and C-heteroatom bonds. Owing to the importance of reusable DG (RDG) in C–H activation, the Sahoo's group demonstrated the use of sulfoximine based RDG [*i.e.* *methyl phenyl sulfoximine (MPS)*, *methyl-2-pyridyl sulfoximine (MPyS)*] for the functionalization of inert C–H bond for the first time. These DG's can easily be installed in the molecule and removed from C–H functionalized product and reused. Some of the major highlights of this work are:

- The *ortho*-C–H bond of benzoic acid and arylacetic acid derivatives are successfully oxidized under Pd-catalysis with the aid of MPS or MPyS-DG, respectively, leading to the synthetically important peripheral decorated phenols, salicylic acids, and *benzolactones*.
- A Ru-catalyzed MPS directed amidation of arene C–H bonds with TsN₃ is achieved for the first time. A successful manifestation of this method has been demonstrated with the concise synthesis of HMR-1766, a class of sGC activators useful in targeting deficient NO signaling in various diseases. The weakly coordinating keto-directed *o*-C-H amidation of arenes with TsN₃ under Ru-catalysis has also been developed.
- The MPyS directed acetoxylation of β -C(sp³)-H bond of amide derivative is realized under Pd(II)-catalysis at room temperature for the first time.

- The bromo (Br) and chloro (Cl) moieties are successfully introduced on remote C(sp³)-H bonds of amide with the aid of MPyS-DG. Sequential halogenation and acetoxylation of multiple C(sp³)-H bonds led to *highly functionalized quaternary carbon bearing molecules for the first time*.
- The *ortho*-alkenylation/hydroarylation of (hetero)arenes with activated alkenes is achieved with the aid of MPS-DG under Ru-catalysts. A concise synthesis of EP3 receptor antagonist analogue has been accomplished using this method. The use of alkyne under the identical reaction conditions led to isoquinolinones.

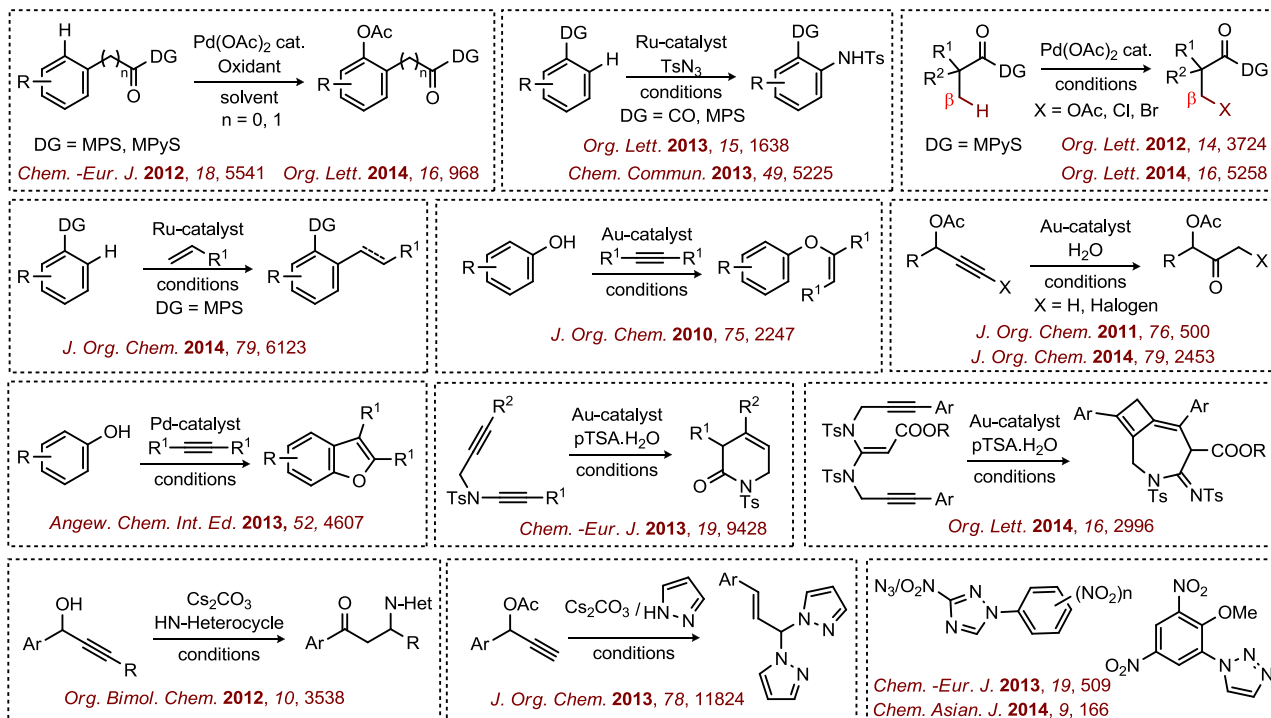
The group for the first time successfully demonstrated annulation between phenols and unactivated internal alkynes in presence of Pd-catalysts for the synthesis of highly substituted benzofurans. The reaction is highly regioselective.

B) Lewis acid catalyzed organic transformation of alkenes/alkynes/ynamides: Lewis acid catalysts (eg. salts of Au, Ag, Cu, etc.) are carbophilic and readily activate π -bond. The Sahoo group contributed significantly for the development of Au and Ag catalyzed cyclization and cycloisomerization of alkyne bearing compounds.

- The Au-catalyzed intermolecular addition of phenols to the unactivated alkynes (*hydrophenoxylation of alkynes*) led to *diverse arylvinyl ethers for the first time*. Multiple hydrophenoxylation of polyphenols with alkyne provides poly-vinylated phenols.
- An atom-economical synthesis of α -acyloxy methyl ketone and α -acyloxy- α' -halo ketones is demonstrated through regioselective hydration of propargyl acetates. The hydration of propargyl acetate is a key step for the synthesis of *Actinopolymorphol B*, which is *accomplished for the first time*.
- The PTSA promoted and Echavarren's catalyst assisted hydrative cyclization of 5-yne-ynamides led to an array of novel 1,6-dihydropyridin-2(3*H*)ones.
- A wide array of *stable alkyne-tethered ketene N,N-acetals* is synthesized by a base promoted reaction between N-protected propargyl amines and 3-bromopropiolate. The Au-catalyzed intramolecular cycloisomerization of ketene *N,N-acetals* provided highly decorated *structurally complex cyclobutene-fused azepine heterocycles for the first time*.
- A new class of 1-aryl-2-*N*-pyrazolyl allyl acetates and 1,3-dipyrazolyl-3-arylpropenes are synthesized from readily accessible pyrazole and propargyl acetates in the presence of Ag(I) catalyst.
- A diverse range of new class of β -heteroarylated ketones are accessed through the base promoted reaction between propargyl alcohol and NH-heteroarenes.

The Sahoo group is actively involved in the design and synthesis of thermally stable energetic materials. To achieve this challenging goal, the group prepared considerable number of N, O, and F bearing heterocycles. *Some of the synthesized molecules are comparable with RDX*.

The Sahoo's group achievement is highlighted in the following scheme.



(b) Summarize the most significant work of the nominee on which the recommendation is based (in 50 words):

- * Development of sulfoximine based reusable directing groups (RDGs) for the activation and functionalization of inert C(sp² and sp³)-H bond under mild reaction conditions.
- * Sequential/multiple functionalization of C(sp² and sp³)-H bonds under the assistance of single RDG.
- * Annulation of phenols and internal unactivated alkynes for benzofuran synthesis.
- * Hydrophenoxylation of unactivated alkynes.
- * Hydrative cyclization of yne-tethered ynamides.
- * Synthesis of stable alkyne tethered N,N-ketene amins.
- * Construction unusual cyclobutene-fused azepin skeleton.
- * Fabrication of alternate thermally stable energetic materials comparable with RDX.

(c) Impact of the contributions in the field concerned, basic or applied:

- * The use of chiral sulfoximine DG would provide a way for the diastereoselective functionalization of unactivated C-H bond, challenging research problem. We are now in an advanced stage of achieving this task.
- * Functionalization of multiple C-H bonds under the assistance of single DG provides opportunities in building complex molecular entities in a step-efficient manner. We have demonstrated few methods for the induction of different functional groups under the assistance of single DG in a sequential manner. Current research is aimed achieving complex reactions through one-step functionalization of multiple C-H bonds. We believe this method would benefit for the rapid synthesis of complex molecular entities.
- * The Au-catalyzed cycloisomerization of alkyne-tethered ynamides and alkyne-tethered ketene N,N-actel fabricates interesting complex building blocks. The cascade-mode of cyclization of the poly-yne tethered ynamides would provide benzo-fused heterocycles, a novel way to lookforward.
- * The fabrication of alternate thermally stable energetic materials compared to the benchmark explosives such as, RDX, HMX, and CL-20 would support the emergency called for

national security. We are in the process of development of sustainable alternate powerful energetic materials, suitable for explosive and propellant applications.

(d) Places where **work of last 5 years** has been referred/ cited in Books, Reviews: give Citation Index of the contribution:

The work done by Dr. Sahoo in the period of 1996- March 2015 has been cited 777 times and 265 times in the period of 2010-2015 for the independent work that has been accomplished at the University of Hyderabad.

Please see Annexure 3 for complete list of citations.

	1996-2009	2010-2015*
Publications	13	18
Citations**	512	265

*Work done at the University of Hyderabad **Upto March 2015

(e) Names of the industries in which the technology (ies) has (have) been used (give the production figures of products): Not Applicable

13. Have the achievements already been recognized by Awards by any learned body. If so, the name of the body, award and the year of award may be given. (A copy of the citation should be enclosed): See **Annexure 4**

a. Prof. D. K. Banerjee Memorial Lecture Award by Department of Organic Chemistry, Indian Institute of Science, Bangalore, 2014.

14. Is the nominee a fellow of the Indian National Science Academy / Indian Academy of Sciences / National Academy of Sciences / others (give details): **No**

15. Has the nominee delivered invited lecture(s) in India / abroad and/ or chaired any scientific International Conference Symposium (give details):

The nominee delivered number of lectures in national and international conferences organized in India and abroad. See **annexure 2** for a concise list.

16 (a) List of nominee's 10 most significant publications (**One set** of reprints to be enclosed. Softcopy of Reprints preferably in PDF are also required):

S.No.	Authors	Title of the paper	Journal	Vol	Year	pp.
1	Nakao, Y.; Imanaka, H.; Sahoo, A. K.; Yada, A.; Hiyama, T.	Alkenyl- and Aryl[2-(hydroxymethyl)phenyl]dimethylsilanes: An Entry to Tetraorganosilicon Reagents for the Silicon-Based Cross-Coupling Reaction	<i>Journal of the American Chemical Society</i>	127	2005	6952
2	Sahoo, A. K.; Mori, S.;	Facile Peripheral Functionalization of Porphyrins by	<i>Angewandte Chemie</i>	45	2006	7972

	Shinokubo, H.; Osuka, A.	Pd-Catalyzed [3+2] Annulation with Alkynes	<i>International Edition (VIP)</i>			
3	Ghosh, N.; Nayak, S.; Sahoo, A. K.	Gold-Catalyzed Regioselective Hydration of Propargyl Acetates Assisted by a Neighboring Carbonyl Group: Access to α - Acyloxy Methyl Ketones and Synthesis of Actinopolymorphol B	<i>Journal of Organic Chemistry</i>	76	2011	500
4	Yadav, R. M.; Rit, R. K.; Sahoo, A. K.	Sulfoximine: A Reusable Directing Group for Chemo- and Regioselective <i>Ortho</i> -C-H Oxidation of Arenes	<i>Chemistry A European Journal</i>	18	2012	5541
5	Bhanuchandra, M.; Yadav, R. M.; Rit, R. K.; Kuram, M. R.; Sahoo, A. K.	Ru(II)-Catalyzed Intermolecular <i>ortho</i> -C-H Amidation of Aromatic Ketones with Sulfonyl Azides	<i>Chemical Communication</i>	49	2013	5225
6	Bhanuchandra, M.; Kuram, M. R.; Sahoo, A. K.	Silver(I)-Catalyzed Reaction between Pyrazole and Propargyl Acetates: Stereoselective Synthesis of the Scorpionate Ligands (E)-Allyl-gem-dipyrazoles (ADPs)	<i>Journal of Organic Chemistry</i>	78	2013	11824
7	Rit, R. K.; Yadav, R. M.; Sahoo, A. K.	Pd(II)-Catalyzed <i>ortho</i> -C-H Oxidation of Arylacetic Acid Derivatives: Synthesis of Benzofuranones	<i>Organic Letters</i>	16	2014	968
8	Ghosh, N.; Nayak, S.; Prabagar, B.; Sahoo, A. K.	Synthesis of α -acyloxy- α' -halo Ketones through Gold-Catalyzed Hydration of Halo-Propargyl Acetate	<i>Journal of Organic Chemistry</i>	79	2014	2453
9	Ghosh, N.; Nayak, S.; Sahoo, A. K.	Gold(I)-Catalyzed 6-endo-dig Hydrative Cyclization of Alkyne- Tethered-Ynamide: Access to 1,6- Dihydropyridine-2(3H)-ones	<i>Chemistry A European Journal</i>	19	2013	9428
10	Rit, R. K.; Yadav, R. M.; Ghosh, K.; Shankar, M.; Sahoo, A. K.	Sulfoximine Assisted Pd(II)- Catalyzed Bromination and Chlorination of Primary β -C(sp ³)-H Bond	<i>Organic Letters</i>	16	2014	5258

(b) List of nominee's 5 most significant publications during the last 5 years (Softcopy of reprints preferably in PDF are also required. Reprints of **two** most significant publications to be enclosed with each copy of pro-forma):

S.No.	Authors	Title of the paper	Journal	Vol	Year	pp.
1	Nayak, S.; Ghosh, N.; Sahoo, A. K.	Access to Cyclobutene-Fused Azepines through Au-Catalyzed Cycloisomerization of Stable Alkyne Tethered Ketene <i>N,N</i> -Acetals	<i>Organic Letters</i>	16	2014	2996
2	Kuram, M. R.; Bhanuchandra, M.; Sahoo, A. K.	Direct Access to Benzo[<i>b</i>]furans through Palladium-Catalyzed Oxidative Annulation of Phenols and Unactivated Internal Alkynes	<i>Angewandte Chemie International Edition</i>	52	2013	4607
3	Yadav, R. M.; Rit, R. K.; Sahoo, A. K.	Sulfoximine Directed Intermolecular <i>o</i> -C–H Amidation of Arenes with Sulfonyl Azides	<i>Organic Letters</i>	15	2013	1638
4	Rit, R. K.; Yadav, R. M.; Sahoo, A. K.	Pd(II)-Catalyzed Primary-C(sp ³)-H Acyloxylation at Room Temperature	<i>Organic Letters</i>	14	2012	3724
5	Kuram, M. R.; Bhanuchandra, M.; Sahoo, A. K.	Gold-Catalyzed Intermolecular Hydrophenoxylation of Unactivated Internal Alkynes	<i>Journal of Organic Chemistry</i>	75	2010	2247

(c) List of nominee's 5 most significant publications from out of work done in India during the last five years: **Please see the above list**

(d) Complete list of publications in standard refereed journals:

The nominee has published 34 papers in international peer-reviewed high quality journals, of which 23 papers are published during 2010-March 2015. The complete list of publications is given in **Annexure 1**.

(e) Complete list of publications with foreign collaborators (indicating your status as author): None in the last seven years.

(f) List of papers published in Conferences /Symposia/ Seminars, etc.: None

(g) List of the most outstanding Technical Reports/ Review Articles: Two (going to appear in 2015)

17. Statement regarding collaboration with scientist abroad: No

18. (a) List of patents taken, if any:

S. No	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/ Country	Status
1	Preparation of Bile Acids and Intermediates Thereof	A. R. Prasad, R. A. Swaringen Jr, J. G. Reid, R. M. Moriarty, and A. K. Sahoo	US 7994351 B2	2011, AUGUST	US patent	approved
2	Intermediates for the Preparation of Bile Acids.	A. R. Prasad, R.A. Swaringen, J. G. Reid, R. M. Moriarty and A. K. Sahoo	GB 2460350 B	2011, APRIL	UK Patent	-do-
3	Preparation of Bile Acids and Intermediates Thereof	A. R. Prasad, R. A. Swaringen Jr, J. G. Reid, R. M. Moriarty, and A. K. Sahoo	US 7902387 B2	2011, MARCH	US Patent	-do-
4	Preparation of Bile Acids and Intermediates Thereof	A. R. Prasad, R.A. Swaringen, J. G. Reid, R. M. Moriarty and A. K. Sahoo	GB 2452 358 B	2009, DECEMBER	UK Patent	-do-

(b) Total number of patents granted in last five years: 03

19. Details of books published if any: Not Applicable

20. Any additional information of relevance:

- The nominee's research activities are supported by funding agencies like DST, DRDO, CSIR.
- The nominee has been a consultant to some of the leading CRO and agro chemical companies.
- Four of the nominee's research students were awarded various post-doctoral fellowships and well placed in reputed research laboratory in the world.

Certified that the information given in the above proforma is correct.

Place

Sponsor's signature

Date

Prof. M. Periasamy
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E-mail: mariappan.periasamy@gmail.com
mpsc@uohyd.ernet.in

Sponsor's name
Designation and complete address with E-mail address

Annexure -1: Complete list of publications

S. No.	Authors	Title of the paper	Journal	Vol	Year	pp.
1	Pandey, G.; Bagul, T. D.; Sahoo, A. K.	[3 + 2] Cycloaddition of Nonstabilized Azomethine Ylides. 7. Stereoselective Synthesis of Epibatidine and Analogues	<i>Journal of Organic Chemistry</i>	63	1998	760
2	Pandey, G.; Sahoo, A. K.; Gadre, S. R.; Bagul, T. D.; Phalgune, U. D.	[3 + 2] Cycloaddition of Nonstabilized Azomethine Ylides. 8. An Efficient Synthetic Strategy for Epiboxidine	<i>Journal of Organic Chemistry</i>	64	1999	4990
3	Pandey, G.; Sahoo, A. K.; Bagul, T. D.	[3 + 2]-Cycloaddition of Nonstabilized Azomethine Ylides. 10. An Efficient Strategy for the Construction of x-Azatricyclo[m.n.0.0 ^{a,b}]alkanes by Intramolecular Cycloaddition of Cyclic Azomethine Ylide	<i>Organic Letters</i>	2	2000	2299
4	Pandey, G.; Sahoo, A. K.; Bagul, T. D.; Gadre, S. R.	An efficient strategy for the construction of X-azatricyclo[m.n.0.0 ^{a,b}]alkanes by intramolecular [3 +2] cycloaddition of nonstabilized cyclic azomethine ylides	<i>ARKIVOC</i>	VIII	2001	83
5	Nakao, Y.; Oda, T.; Sahoo, A. K.; Tamejiri, H.	Triallyl(aryl)silanes serve as a convenient agent for silicon-based cross-coupling reaction of aryl halides	<i>Journal of Organometallic Chemistry</i>	687	2003	570
6	Sahoo, A. K.; Oda, T.; Nakao, Y.; Hiyama, T.	Cross-Coupling of Triallyl(aryl)silanes with Aryl Bromides and Chlorides: An Alternative Convenient Biaryl Synthesis	<i>Advanced synthesis and catalysis</i>	346	2004	1715
7	Sahoo, A. K.; Nakao, Y.; Hiyama, T.	A Highly Effective and Practical Biaryl Synthesis with Triallyl(aryl)silanes and Aryl Chlorides	<i>Chemistry Letters</i>	33	2004	632
8	Nakao, Y.; Imanaka, H.; Sahoo, A. K.	Alkenyl- and Aryl[2-(hydroxymethyl)phenyl]dimethylsilanes: An Entry to	<i>Journal of the American Chemical</i>	127	2005	6952

	Yada, A.; Hiyama, T.	Tetraorganosilicon Reagents for the Silicon-Based Cross- Coupling Reaction	<i>Society</i>			
9	Nakao, Y.; Imanaka, H.; Sahoo, A. K.; Yada, A.; Hiyama, T.	Alkenyl- and aryl[2- (hydroxymethyl)phenyl]- dimethylsilanes: Tetraorganosilanes for the practical cross-coupling reaction	<i>Pure and Applied Chemistry</i>	78	2006	435
10	Sahoo, A. K.; Nakamura, Y.; Aratani, N.; Kim, K. S.; Noh, S. B.; Shinokubo, H.; Kim, D.; Osuka, A.	Synthesis of Brominated Directly Fused Diporphyrins through Gold(III)-Mediated Oxidation	<i>Organic Letters</i>	18	2006	4141
11	Sahoo, A. K.; Mori, S.; Shinokubo, H.; Osuka, A.	Facile Peripheral Functionalization of Porphyrins by Pd-Catalyzed [3+2] Annulation with Alkynes	<i>Angewandte Chemie International Edition</i>	45	2006	7972
12	Nakao, Y.; Sahoo, A. K.; Yada, A.; Chen, J.; Hiyama, T.	Biaryl Synthesis using Highly Stable Aryl[2- (hydroxymethyl)phenyl]dimet hylsilanes and Aryl Iodides under Fluoride Free Condition	<i>Science and Technology of Advanced Materials</i>	7	2006	536
13	Kuram, M. R.; Bhanuchandra, M.; Sahoo, A. K.	Gold-Catalyzed Intermolecular Hydrophenoxylation of Unactivated Internal Alkynes	<i>Journal of Organic Chemistry</i>	75	2010	2247
14	Chen, J.; Tanaka, M.; Sahoo, A. K.; Takeda, M.; Yada, A.; Nakao, Y.; Hiyama, T.	Synthesis of Biaryls and Oligiarenenes Using Aryl[2- (hydroxymethyl)phenyl] Dimethylsilanes	<i>Bulletin of the Chemical Society of Japan</i>	83	2010	554
15	Ghosh, N.; Nayak, S.; Sahoo, A. K.	Gold-Catalyzed Regioselective Hydration of Propargyl Acetates Assisted by a Neighboring Carbonyl Group: Access to α -Acyloxy Methyl Ketones and Synthesis of Actinopolymorphol B	<i>Journal of Organic Chemistry</i>	76	2011	500

16	Bhanuchandra, M.; Kuram, M. R.; Sahoo, A. K.	A Convenient Approach to <i>b</i> -Heteroarylated (C-N Bond) Ketones from Cs ₂ CO ₃ Promoted Reaction between Propargyl Alcohols and Nitrogen-Heterocycles	<i>Organic and Biomolecular Chemistry</i>	10	2012	3538
17	Yadav, R. M.; Rit, R. K.; Sahoo, A. K.	Sulfoximine: A Reusable Directing Group for Chemo- and Regioselective <i>Ortho</i> -C-H Oxidation of Arenes	<i>Chemistry A European Journal</i>	18	2012	5541
18	Rit, R. K.; Yadav, R. M.; Sahoo, A. K.	Pd(II)-Catalyzed Primary-C(sp ³)-H Acyloxylation at Room Temperature	<i>Organic Letters</i>	14	2012	3724
19	Kumar, A.S.; Ghule, V. D.; Subrahmanyam, S.; Sahoo, A. K.	Synthesis of Thermally Stable Energetic 1,2,3-Triazole Derivatives	<i>Chemistry A European Journal</i>	19	2013	509
20	Kuram, M. R.; Bhanuchandra, M.; Sahoo, A. K.	Direct Access to Benzo[<i>b</i>]furans through Palladium-Catalyzed Oxidative Annulation of Phenols and Unactivated Internal Alkynes	<i>Angewandte Chemie International Edition</i>	52	2013	4607
21	Yadav, R. M.; Rit, R. K.; Sahoo, A. K.	Sulfoximine Directed Intermolecular <i>o</i> -C-H Amidation of Arenes with Sulfonyl Azides	<i>Organic Letters</i>	15	2013	1638
22	Bhanuchandra, M.; Yadav, R. M.; Rit, R. K.; Kuram, M. R.; Sahoo, A. K.	Ru(II)-Catalyzed Intermolecular <i>ortho</i> -C-H Amidation of Aromatic Ketones with Sulfonyl Azides	<i>Chemical Communication</i>	49	2013	5225
23	Ghosh, N.; Nayak, S.; Sahoo, A. K.	Gold(I)-Catalyzed 6-endo-dig Hydrative Cyclization of Alkyne-Tethered-Ynamide: Access to 1,6-Dihydropyridine-2(3H)-ones	<i>Chemistry A European Journal</i>	19	2013	9428
24	Bhanuchandra, M.; Kuram, M. R.; Sahoo, A. K.	Silver(I)-Catalyzed Reaction between Pyrazole and Propargyl Acetates: Stereoselective Synthesis of the Scorpionate Ligands (<i>E</i>)-Allyl-gem-dipyrazoles (ADPs)	<i>Journal of Organic Chemistry</i>	78	2013	11824

25	Kommu, N.; Ghule, V. D.; Kumar, A. S.; Sahoo, A. K.	Triazole Substituted Nitroarene Derivatives: Synthesis, Characterization and Energetic Studies	<i>Chemistry An Asian Journal</i>	9	2014	166
26	Rit, R. K.; Yadav, R. M.; Sahoo, A. K.	Pd(II)-Catalyzed <i>ortho</i> -C–H Oxidation of Arylacetic Acid Derivatives: Synthesis of Benzofuranones	<i>Organic Letters</i>	16	2014	968
27	Ghosh, N.; Nayak, S.; Prabagar, B.; Sahoo, A. K.	Synthesis of α -acyloxy- α' - halo Ketones through Gold- Catalyzed Hydration of Halo- Propargyl Acetate	<i>Journal of Organic Chemistry</i>	79	2014	2453
28	Kumar, A. S.; Kommu, N.; Ghule, V. D.; Sahoo, A. K.	Synthesis of Trifluoromethyl- Substituted N-Aryl-Poly- 1,2,3-Triazole Derivatives	<i>Journal of Material Chemistry A</i>	2	2014	7917
29	Nayak, S.; Ghosh, N.; Sahoo, A. K.	Access to Cyclobutene- Fused Azepines through Au- Catalyzed Cycloisomerization of Stable Alkyne Tethered Ketene <i>N,N</i> -Acetals	<i>Organic Letters</i>	16	2014	2996
30	Yadav, R. M.; Rit, R. K.; Shankar, M.; Sahoo, A. K.	Sulfoximine-Directed Ruthenium-Catalyzed <i>ortho</i> - C–H Alkenylation of (Hetero)Arenes: Synthesis of EP3 Receptor Antagonist Analogue	<i>Journal of Organic Chemistry</i>	79	2014	6123
31	Rit, R. K.; Yadav, R. M.; Ghosh, K.; Shankar, M.; Sahoo, A. K.	Sulfoximine Assisted Pd(II)- Catalyzed Bromination and Chlorination of Primary β -C(sp ³)-H Bond	<i>Organic Letters</i>	16	2014	5258
32	Rao, K. S.; Yehya, F.; Chaudhary, A. K.; Kumar, A. S.; Sahoo, A. K.	Thermal stability study of nitro-rich triazole derivatives using temperature dependent time resolved pulsed photoacoustic (PA) technique	<i>Journal of Analytical and Applied Pyrolysis</i>	109	2014	132
33	Rit, R. K.; Yadav, R. M.; Ghosh, K.; Sahoo, A. K.	Reusable Directing Group [8- Aminoquinoline, Picolinamide, Sulfoximine] in C(sp ³)-H Activation: Present and Future	<i>Tetrahedron</i>	71	2015	accepted
34	Yadav, R. M.; Shankar, M.; Ghosh, K.;	Ruthenium-Catalyzed <i>ortho</i> - C-H Mono and Di-Amidation of Arenes with N-	<i>Organic Letters</i>	17	2015	accepted

	Ramesh, E.; Sahoo, A. K.	Tosyloxyphthalimide				
35	Yadav, R. M.; Rit, R. K.; Shankar, M; Sahoo, A. K.	Reusable Directing Groups for C(sp ²)-H Bond Functionalization of Arenes	<i>Asian Journal of Organic Chemistry</i>	4	2015	submitted

Annexure -2: Concise list of invited lectures in national and international conferences delivered by the nominee (in the last 5 years)

- * National Symposium on “Recent Trends in Organometallic Compounds and Their Industrial Application” (OMCA-2009), KIIT University, Bhubaneswar, Orissa, February 26-28 2009.
- * International Indo-French Symposium, University of Hyderabad, Hyderabad, India, 13 April 2011.
- * 2nd International Collaborative and Cooperative Chemistry Symposium” University of Queensland, Brisbane, Australia, October 31 to November 2, 2011.
- * The Twelfth International Kyoto Conference on New Aspects of Organic Chemistry: IKCOC-12, Kyoto, JAPAN, Novemer 12-16, 2012.
- * 1st International Conference on Recent Trends in Organometallic Compounds and their Industrial Applications, KIIT, Bhubaneswar, Odisha, India, February 5-7, 2013.
- * In-house symposium ChemFest, University of Hyderabad, 15 February 2013.
- * Indian Institute of Science, Bangalore, January 20, 2013.
- * Indo-French Collaboration Meeting, NISER, Bhubaneswar, February 26-28, 2014.
- * International symposium on NIICT, IICT, Hyderabad, March 2-5, 2014.
- * National Symposium “Recent Advances in Chemistry” Visva-Bharati, Santiniketan, March 09, 2014.
- * XVI-Organic Chemistry Conference (NOST-India), Agra, April 3-7 2014
- * 2nd international symposium on C-H activation (ISCHA-2), University De Rennes, Rennes,France, June 30- July 3, 2014.
- * National symposium on “Transcending Frontiers in Organic Chemistry” (TFOC-2014) at Thiruvanthapuram, Kerala, October 8-11, 2014
- * Indo-French Conference "New Trends in Chemistry and Chemical Biology with a special focus on CNS Disorders" Pondicherry November 9-12, 2014
- * National Symposium on “New Directions in Chemical Synthesis-I” IIT-Bombay, December 8-9, 2014.

Annexure-3: List of publications that cite the nominee's work in last 5 years (2010 to 15 March 2015):

This list does not include self-citations

S. No.	Title of the paper	authors	Journal	vol	Year	Page no
1	Iridium-catalyzed intermolecular dehydrogenative silylation of polycyclic aromatic compounds without directing groups	Murai, M., Takami, K., Takai, K.	<i>Chemistry - A European Journal</i>	21	2015	4566
2	Transition-metal-free direct amination of simple arenes with sulfonyl azides	Wang, L., Borah, A. J., Yan, G.	<i>Tetrahedron Letters</i>	56	2015	1353
3	Regio- and stereoselective Pd-catalyzed direct arylation of unactivated sp ³ C(3)-H bonds of tetrahydrofuran and 1,4-benzodioxane systems	Parella, R., Babu, S. A.	<i>Journal of Organic Chemistry</i>	80	2015	2339
4	Ligand-promoted ortho-C-H amination with Pd catalysts	Zhu, D., Yang, G., He, J., Chu, L., Chen, G., Gong, W., Chen, K., Eastgate, M. D. Yu, J.-Q.	<i>Angewandte Chemie - International Edition</i>	54	2015	2497
5	Practical synthesis of anti-β-hydroxy-α-amino acids by PdII-catalyzed sequential C(sp ³)-H functionalization	Chen, K., Zhang, S.-Q., Jiang, H.-Z., Xu, J.-W., Shi, B.-F.	<i>Chemistry - A European Journal</i>	21	2015	3264
6	Copper-catalyzed oxidative coupling of acids with alkanes involving dehydrogenation: Facile access to allylic esters and alkylalkenes	Wang, C.-Y., Song, R.-J., Wei, W.-T., Fan, J.-H., Li, J.-H.	<i>Chemical Communications</i>	51	2015	2361
7	In situ synthesized 3D heterometallic metal-organic framework (MOF) as a high-energy-density material shows high heat of detonation, good thermostability and insensitivity	Feng, Y., Liu, X., Duan, L., Yang, Q., Wei, Q., Xie, G., Chen, S., Yang, X., Gao, S.i	<i>Dalton Transactions</i>	44	2015	2333
8	Cobalt(III)-catalyzed C-H amidation of arenes using acetoxycarbamates as convenient amino sources under mild conditions	Patel, P., Chang, S.	<i>ACS Catalysis</i>	5	2015	853
9	Stereoselective gold(I)-catalyzed intermolecular hydroalkoxylation of alkynes	Veenboer, R. M. P., Dupuy, S., Nolan, S. P.	<i>ACS Catalysis</i>	2	2015	1330
10	Cross-dehydrogenative coupling for the intermolecular C-O bond formation	Krylov, I. B., Vil, V. A., Terent'ev, A. O.	<i>Beilstein Journal of Organic Chemistry</i>	11	2015	92
11	Efficient hydration of alkynes through acid-assisted Brønsted acid catalysis	Liang, S., Hammond, G. B., Xu, B.	<i>Chemical Communications</i>	51	2015	903
12	Robust ruthenium(II)-catalyzed C-H arylations: Carboxylate assistance for the efficient synthesis of angiotensin-II-receptor blockers	Ackermann, L.	<i>Organic Process Research and Development</i>	19	2015	260
13	Gold(I)-catalyzed 1,2-acyloxy migration/[3+2] cycloaddition of 1,6-diyne	Liu, J., Chen, M., Zhang, L., Liu, Y.	<i>Chemistry - A European Journal</i>	21	2015	1009

	with an ynamide propargyl ester moiety: Highly efficient synthesis of functionalized cyclopenta[b]indoles					
14	Synthesis of polysubstituted cyclopenta[b]indoles via relay gold(I)/Brønsted acid catalysis	Dhiman, S., Ramasastry, S. S. V.	<i>Chemical Communications</i>	51	2015	557
15	Copper-catalyzed regioselective synthesis of furan via tandem cycloaddition of ketone with an unsaturated carboxylic acid under air	Ghosh, M., Mishra, S., Monir, K., Hajra, A.	<i>Organic and Biomolecular Chemistry</i>	13	2015	309
16	Ceric ammonium nitrate (CAN) promoted PdII-catalyzed substrate-directed o-benzoylation and decarboxylative o-arylation	Santra, S.K., Banerjee, A., Khatun, N., Patel, B. K.	<i>European Journal of Organic Chemistry</i>	2015	2015	530
17	Metal-free hydroacyloxylation and hydration reactions of ynamides: Synthesis of α -acyloxyenamides and N-acylsulfonamides	Xu, S., Liu, J., Hu, D., Bi, X.	<i>Green Chemistry</i>	17	2015	184
18	Tandem benzylic oxidation/dihydroxylation of α -vinyl- and α -alkenylbenzyl alcohols	Fernandes, R. A., Kattanguru, P.	<i>Helvetica Chimica Acta</i>	98	2015	92
19	Cesium carbonate catalyzed aza-michael addition of pyrazole to α,β -unsaturated ketones	Yang, J., Ma, B., Zhou, H., Zhan, B., Li, Z.	<i>Chinese Journal of Organic Chemistry</i>	35	2015	121
20	IrIII-catalyzed direct C-7 amidation of indolines with sulfonyl, acyl, and aryl azides at room temperature	Hou, W., Yang, Y., Ai, W., Wu, Y., Wang, X., Zhou, B., Li, Y.	<i>European Journal of Organic Chemistry</i>	2015	2015	395
21	Bu ₄ NI-catalyzed α -acyloxylation reaction of ethers and ketones with aldehydes and tert-butyl hydroperoxide	Zhu, F., Wang, Z.-X.	<i>Tetrahedron</i>	70	2014	9819
22	Copper catalyzed oxidative ortho-C-H benzoylation of 2-phenylpyridines with benzyl alcohols and benzyl amines as benzoylation sources	Khemnar, A. B., Bhanage, B. M.	<i>Organic and Biomolecular Chemistry</i>	12	2014	9631
23	Rhodium(III)-catalysed aerobic synthesis of highly functionalized indoles from N-arylsurea under mild conditions through C-H activation	Kathiravan, S., Nicholls, I. A.	<i>Chemical Communications</i>	50	2014	14964
24	RhIII-catalyzed dual directing group assisted sterically hindered C-H bond activation: A unique route to meta and ortho substituted benzofurans	Yeh, C.-H.; Chen, W.-C.; Gandeepan, P.; Hong, Y.-C.; Shih, C.-H.; Cheng, C.-H.	<i>Organic and Biomolecular Chemistry</i>	12	2014	9105
25	Palladium(II)-Catalyzed Oxidative Dearomatization of Free Naphthols with Two Alkyne Units	Gu, S.; Luo, L.; Liu, J.; Bai, L.; Zheng, H.; Wang, Y.; Luan, X.	<i>Organic Letters</i>	16	2014	6132
26	Facile tandem Suzuki coupling/transfer hydrogenation reaction with a bis-heteroscorpionate Pd-Ru complex	Dehury, N., Tripathy, S.K., Sahoo, A., Maity, N., Patra, S.	<i>Dalton Transactions</i>	43	2014	16597

27	Anion-directed assemblies of cationic metal-organic frameworks based on 4,4'-bis(1,2,4-triazole): Syntheses, structures, luminescent and anion exchange properties	Li, X., Gong, Y., Zhao, H., Wang, R.	<i>Inorganic Chemistry</i>	53	2014	12127
28	Copper-mediated direct alkoxylation of arenes using an N, O -bidentate directing system	Zhang, L.-B.; Hao, X.-Q.; Zhang, S.-K.; Liu, K.; Ren, B.; Gong, J.-F.; Niu, J.-L.; Song, M.-P.	<i>Journal of Organic Chemistry</i>	79	2014	10399
29	Highly efficient synthesis of allenes from trimethylaluminum reagent and propargyl acetates mediated by a palladium catalyst	Li, Q.-H., Jeng, J.-Y., Gau, H.-M.	<i>European Journal of Organic Chemistry</i>	2014	2014	7916
30	One-pot synthesis of highly fluorescent pyrido[1,2- α]indole derivatives through C-H/N-H activation: Photophysical investigations and application in cell imaging	Samala, S.; Pallavi, P.; Kumar, R.; Arigela, R. K.; Singh, G.; Ampapathi, R. S.; Priya, A.; Datta, S.; Patra, A.; Kundu, B.	<i>Chemistry - A European Journal</i>	20	2014	14344
31	Cyclic ethers to esters and monoesters to bis-esters with unconventional coupling partners under metal free conditions via sp ³ C-H functionalisation	Majji, G., Guin, S., Rout, S.K., Behera, A., Patel, B.K.	<i>Chemical Communications</i>	50	2014	12193
32	Solvent-mediated crystal-to-crystal transformations from a cationic homometallic metal-organic framework to heterometallic frameworks	Li, X., Gong, Y., Zhao, H., Wang, R.	<i>CrystEngComm</i>	16	2014	8818
33	Iridium-catalyzed phosphoramidation of arene C-H bonds with phosphoryl azide	Pan, C., Jin, N., Zhang, H., Han, J., Zhu, C.	<i>Journal of Organic Chemistry</i>	79	2014	9427
34	Rhodium-catalyzed alkylation of C-H bonds in aromatic amides with α,β -unsaturated esters	Shibata, K., Chatani, N.	<i>Organic Letters</i>	16	2014	5148
35	Ru(II)-catalyzed selective C-H amination of xanthenes and chromones with sulfonyl azides: Synthesis and anticancer evaluation	Shin, Y.; Han, S.; De, U.; Park, J.; Sharma, S.; Mishra, N. K.; Lee, E.-K.; Lee, Y.; Kim, H. S.; Kim, I. S.	<i>Journal of Organic Chemistry</i>	79	2014	9262
36	Gold-catalyzed tandem cycloisomerization/functionalization of in situ generated α -oxo gold carbenes in water	Shen, C.-H. Li, L.; Zhang, W.; Liu, S.; Shu, C.; Xie, Y.-E.; Yu, Y.-F.; Ye, L.-W.	<i>Journal of Organic Chemistry</i>	79	2014	9313
37	Copper-promoted site-selective acyloxylation of unactivated C(sp ³)-H bonds	Wu, X., Zhao, Y., Ge, H.	<i>Chemistry - An Asian Journal</i>	9	2014	2736
38	Rh(iii)-catalyzed tandem oxidative olefination-cyclization of aryl sulfonamides	Ding, Q.; Liu, T.; Zheng, Q.; Zhang, Y.; Long, L.; Peng, Y.	<i>RSC Advances</i>	4	2014	51309
39	Rhodium(iii)-catalyzed regioselective C2-amidation of indoles with N-(2,4,6-trichlorobenzoyloxy)amides and its synthetic application to the development of a novel potential PPAR γ modulator	Shi, J., Zhao, G., Wang, X., Xu, H.E., Yi, W.	<i>Organic and Biomolecular Chemistry</i>	12	2014	6831

40	Keteniminium ion-initiated cascade cationic polycyclization	Theunissen, C.; Metayer, B.; Henry, N.; Compain, G.; Marrot, J.; Mingot, A. M.; Thibaudeau, S.; Evano, G.	<i>Journal of the American Chemical Society</i>	136	2014	12528
41	Catalytic 1,4-rhodium(III) migration enables 1,3-enynes to function as one-carbon oxidative annulation partners in C-H functionalizations	Burns, D.J., Lam, H.W.	<i>Angewandte Chemie - International Edition</i>	53	2014	9931
42	Ru-catalyzed direct C-H amidation of 2-arylbenzo[d]thiazoles with sulfonyl azides	Zhou, X.; Luo, P.; Long, L.; Ouyang, M.; Sang, X.; Ding, Q.	<i>Tetrahedron</i>	70	2014	6742
43	Novel synthesis of right segment of solanoecepin a	Chuang, H.-Y., Isobe, M.	<i>Organic Letters</i>	16	2014	4166
44	Comparative investigations of cp*-based group 9 metal-catalyzed direct C-H amination of benzamides	Figg, T.M., Park, S., Park, J., Chang, S., Musaev, D.G.	<i>Organometallics</i>	33	2014	4076
45	One-pot stepwise approach to β -enaminoketoesters through "masked" 1,3-azadipoles	Yan, Z.-M., Wu, N., Liang, D., Wang, H.-S., Pan, Y.-M.	<i>Organic Letters</i>	16	2014	4048
46	Nickel-catalyzed site-selective amidation of unactivated C(sp ³)-H bonds	Wu, X., Zhao, Y., Ge, H.	<i>Chemistry - A European Journal</i>	20	2014	9530
47	Direct functionalization with complete and switchable positional control: Free phenol as a role model	Yu, D.-G., De Azambuja, F., Glorius, F.	<i>Angewandte Chemie - International Edition</i>	53	2014	7710
48	Practical, modular, and general synthesis of benzofurans through extended pummerer annulation/cross-coupling strategy	Murakami, K., Yorimitsu, H., Osuka, A.	<i>Angewandte Chemie - International Edition</i>	53	2014	7510
49	Synthesis of spirocyclic enones by rhodium-catalyzed dearomatizing oxidative annulation of 2-alkenylphenols with alkynes and enynes	Kujawa, S., Best, D., Burns, D.J., Lam, H.W.	<i>Chemistry - A European Journal</i>	20	2014	8599
50	Palladium-catalyzed α -arylation of aryloxyketones for the synthesis of 2,3-Disubstituted benzofurans	Lee, J. H., Kim, M., Kim, I.	<i>Journal of Organic Chemistry</i>	79	2014	6153
51	Cationic gold catalyst poisoning and reactivation	Kumar, M., Hammond, G. B., Xu, B.	<i>Organic Letters</i>	16	2014	3452
52	Palladium-catalyzed tandem reaction of 2-hydroxyarylacetonitriles with sodium sulfonates: One-pot synthesis of 2-arylbenzofurans	Chen, J., Li, J., Su, W.	<i>Organic and Biomolecular Chemistry</i>	12	2014	4078
53	Ru-catalyzed branched versus linear selective C3-alkylation of 2-arylbzofurans with acrylates via C-H activation	Kommagalla, Y., Srinivas, K., Ramana, C. V.	<i>Chemistry - A European Journal</i>	20	2014	7884
54	Selective synthesis of 4-(sulfonyl)-methyl-1H-pyrazoles and (E)-4,5-dihydro-1H-pyrazoles from N-allenic sulfonylhydrazones	Zhu, Y.; Hong, J.-J.; Zhou, Y.-B.; Xiao, Y.-W.; Lin, M.; Zhan, Z.-P.	<i>Organic and Biomolecular Chemistry</i>	12	2014	3797
55	N-substituted hydroxylamines as synthetically versatile amino	Patel, P., Chang, S.	<i>Organic Letters</i>	16	2014	3328

	sources in the iridium-catalyzed mild C-H amidation reaction					
56	Entry to highly hindered chiral β -amino triazoles bearing a gem-diaryl group by azide-alkyne click chemistry	Sadu, V.S., Roy, H.N., Arigala, P., Hwang, I.-T., Lee, K.-I.	<i>Bulletin of the Korean Chemical Society</i>	35	2014	1605
57	Iron(III) sulfate as terminal oxidant in the synthesis of methyl ketones via wacker oxidation	Fernandes, R.A., Chaudhari, D.A.	<i>Journal of Organic Chemistry</i>	79	2014	5787
58	Chemoselective synthesis of unsymmetrical internal alkynes or vinyl sulfones via palladium-catalyzed cross-coupling reaction of sodium sulfinates with alkynes	Xu, Y., Zhao, J., Tang, X., Wu, W., Jiang, H.	<i>Advanced Synthesis and Catalysis</i>	356	2014	2029
59	1,2-N-migration in a gold-catalysed synthesis of functionalised indenenes by the 1,1-carboalkoxylation of ynamides	Adcock, H.V., Langer, T., Davies, P.W.	<i>Chemistry - A European Journal</i>	20	2014	7262
60	Rhodium(III)-catalyzed intermolecular amidation with azides via C(sp ³)-H functionalization	Wang, N.; Li, R.; Li, L.; Xu, S.; Song, H.; Wang, B.	<i>Journal of Organic Chemistry</i>	79	2014	5379
61	Synthesis of sulfonyl azides via diazotransfer using an imidazole-1-sulfonyl azide salt: Scope and 15N NMR labeling experiments	Stevens, M.Y., Sawant, R.T., Odell, L.R.	<i>Journal of Organic Chemistry</i>	79	2014	4826
62	Pd/C-mediated arylation followed by I ₂ -catalyzed hydration strategy: Preparation of functionalized novel indanone derivatives	Dulla, B.; Kolli, S. K.; Chamakura, U. R.; Deora, G. S.; Raju, R. R.; Pal, M.	<i>Synthetic Communications</i>	44	2014	1466
63	Palladium-catalyzed direct dehydrogenative annulation of ferrocenecarboxamides with alkynes in air	Xie, W., Li, B., Xu, S., Song, H., Wang, B.	<i>Organometallics</i>	33	2014	2138
64	Air-stable carbonyl(pentamethylcyclopentadienyl)cobalt diiodide complex as a precursor for cationic (pentamethylcyclopentadienyl)cobalt(III) catalysis: Application for directed C-2 selective C-H amidation of indoles	Sun, B., Yoshino, T., Matsunaga, S., Kanai, M.	<i>Advanced Synthesis and Catalysis</i>	356	2014	1491
65	Palladium-catalyzed picolinamide-directed acetoxylation of unactivated γ -C(sp ³)-H bonds of alkylamines	Li, Q., Zhang, S.-Y., He, G., Nack, W.A., Chen, G.	<i>Advanced Synthesis and Catalysis</i>	356	2014	1544
66	Weakly coordinating directing groups for ruthenium(II)-catalyzed C-H activation	De Sarkar, S., Liu, W., Kozhushkov, S.I., Ackermann, L.	<i>Advanced Synthesis and Catalysis</i>	356	2014	1461
67	Rhodium-catalyzed direct amination of arenes with nitrosobenzenes: A new route to diarylamines	Du, J., Yang, Y., Feng, H., Li, Y., Zhou, B.	<i>Chemistry - A European Journal</i>	20	2014	5727
68	Ruthenium-catalyzed synthesis of isoquinolones with 8-aminoquinoline as a bidentate directing group in C-H functionalization	Allu, S., Swamy, K. C. K.	<i>Journal of Organic Chemistry</i>	79	2014	3963

69	Rhodium-catalyzed direct C-H amidation of azobenzenes with sulfonyl azides: A synthetic route to sterically hindered ortho-substituted aromatic azo compounds	Jia, X., Han, J.	<i>Journal of Organic Chemistry</i>	79	2014	4180
70	Ruthenium-catalyzed direct C-H amidation of arenes: A mechanistic study	Zhang, L.-L.; Li, L.-H.; Wang, Y.-Q.; Yang, Y.-F.; Liu, X.-Y.; Liang, Y.-M.	<i>Organometallics</i>	33	2014	1905
71	Silver-free two-component approach in gold catalysis: Activation of [LAuCl] complexes with derivatives of copper, zinc, indium, bismuth, and other Lewis acids	Fang, W.; Presset, M.; Guérinot, A.; Bour, C.; Lafollée, S. B.; Gandon, V.	<i>Chemistry - A European Journal</i>	20	2014	5439
72	Ruthenium(II)-catalyzed synthesis of isochromenes by C-H activation with weakly coordinating aliphatic hydroxyl groups	Nakanowatari, S., Ackermann, L.	<i>Chemistry - A European Journal</i>	20	2014	5409
73	Gold-catalyzed intermolecular C-S bond formation: Efficient synthesis of α -substituted vinyl sulfones	Xi, Y.; Dong, B.; McClain, E. J.; Wang, Q.; Gregg, T. L.; Akhmedov, N. G.; Petersen, J. L.; Shi, X.	<i>Angewandte Chemie - International Edition</i>	53	2014	4657
74	[RhIII(Cp*)]-catalyzed ortho-selective direct C(sp ²)-H bond amidation/amination of benzoic acids by N-chlorocarbamates and N-chloromorpholines. A versatile synthesis of functionalized anthranilic acids	Ng, F.-N., Zhou, Z., Yu, W.-Y.	<i>Chemistry - A European Journal</i>	20	2014	4474
75	Rhodium-catalyzed direct ortho C-N bond formation of aromatic Azo compounds with azides	Wang, H., Yu, Y., Hong, X., Tan, Q., Xu, B.	<i>Journal of Organic Chemistry</i>	79	2014	3279
76	Ortho-benzoylation of N-alkyl benzamides with aromatic acids catalyzed by ruthenium(II) complex	Padala, K., Jeganmohan, M.	<i>Chemistry - A European Journal</i>	20	2014	4092
77	Copper-catalyzed site-selective intramolecular amidation of unactivated C(sp ³)-H bonds	Wu, X., Zhao, Y., Zhang, G., Ge, H.	<i>Angewandte Chemie - International Edition</i>	53	2014	3706
78	Palladium-catalyzed synthesis of benzofurans via C-H activation/oxidation tandem reaction and its application to the synthesis of decursivine and serotobenine	Guo, L., Zhang, F., Hu, W., Li, L., Jia, Y.	<i>Chemical Communications</i>	50	2014	3299
79	Ruthenium-catalyzed C7 amidation of indoline C-H bonds with sulfonyl azides	Pan, C., Abdulkader, A., Han, J., Cheng, Y., Zhu, C.	<i>Chemistry - A European Journal</i>	20	2014	3606
80	Ruthenium-catalyzed cross-dehydrogenative ortho-N-carbazolation of diarylamines: Versatile access to unsymmetrical diamines	Louillat, M.-L., Biafora, A., Legros, F., Patureau, F.W.	<i>Angewandte Chemie - International Edition</i>	53	2014	3505
81	Evaluation and development of novel photoinitiator complexes for photoinitiating the copper-catalyzed azide-alkyne cycloaddition reaction	Alzahrani, A.A., Erbse, A.H., Bowman, C.N.	<i>Polymer Chemistry</i>	5	2014	1874

82	Terminal aryl alkenes and alkynes as arylcarboxy surrogates toward o - Benzoylation of 2-phenylpyridine catalyzed by copper	Rout, S.K., Guin, S., Gogoi, A., Majji, G., Patel, B.K.	<i>Organic Letters</i>	16	2014	1614
83	Palladium-catalyzed β -acyloxylation of simple amide via sp ³ C-H activation	Zhou, L., Lu, W.	<i>Organic Letters</i>	16	2014	508
84	Rh(III)-Catalyzed C-H amidation with N-Hydroxycarbamates: A new entry to N-Carbamate-protected arylamines	Zhou, B., Du, J., Yang, Y., Feng, H., Li, Y.	<i>Organic Letters</i>	16	2014	592
85	Total synthesis of asterredione	Gai, S., Zhang, Q., Hu, X.	<i>Journal of Organic Chemistry</i>	79	2014	2111
86	Palladium catalyzed acetoxylation of benzylic C-H bonds using a bidentate picolinamide directing group	Cheng, T., Yin, W., Zhang, Y., Zhang, Y., Huang, Y.	<i>Organic and Biomolecular Chemistry</i>	12	2014	1405
87	Metal-catalyzed synthesis of hetero-substituted alkenes and alkynes	Evano, G.; Gaumont, A.-C.; Alayrac, C.; Wrona, I. E.; Giguere, J. R.; Delacroix, O.; Bayle, A.; Jouvin, K.; Theunissen, C.; Gatignol, J.; Silvanus, A. C.	<i>Tetrahedron</i>	70	2014	1529
88	Copper-mediated direct aryloxylation of benzamides assisted by an N, O - bidentate directing group	Hao, X.-Q.; Chen, L.-J.; Ren, B.; Li, L.-Y.; Yang, X.-Y.; Gong, J.-F.; Niu, J.-L.; Song, M.-P.	<i>Organic Letters</i>	16	2014	1104
89	Ynamides in ring forming transformations	Wang, X.-N.; Yeom, H.-S.; Fang, L.-C.; He, S.; Ma, Z.-X.; Kedrowski, B. L.; Hsung, R. P.	<i>Accounts of Chemical Research</i>	47	2014	560
90	Mechanistic studies of the rhodium-catalyzed direct C-H amination reaction using azides as the nitrogen source	Park, S. H.; Kwak, J.; Shin, K.; Ryu, J.; Park, Y.; Chang, S.	<i>Journal of the American Chemical Society</i>	136	2014	2492
91	Palladium-catalyzed [2+2+1] oxidative annulation of 4-hydroxycoumarins with unactivated internal alkynes: Access to spiro cyclopentadiene-chroman-2,4-dione complexes	Peng, S.; Gao, T.; Sun, S.; Peng, Y.; Wu, M.; Guo, H.; Wang, J.	<i>Advanced Synthesis and Catalysis</i>	356	2014	319
92	Oxidative C-H amination reactions	Louillat, M.-L., Patureau, F.W.	<i>Chemical Society Reviews</i>	43	2014	901
93	Origins of selective C(sp ²)-H activation using transition metal complexes with N,N-Bidentate directing groups: A combined theoretical-experimental study	Tang, H.; Zhou, B.; Huang, X.-R.; Wang, C.; Yao, J.; Chen, H.	<i>ACS Catalysis</i>	4	2014	649
94	Ruthenium-catalyzed ortho-C-H halogenations of benzamides	Wang, L., Ackermann, L.	<i>Chemical Communications</i>	50	2014	1083
95	Reactions of Nucleophiles with Coordinated Alkynes, Alkenes, and Allenes	Bai, W., Chen, J., Jia, G.	<i>Comprehensive Organic Synthesis: Second Edition</i>	4	2014	580
96	Pd-catalyzed assembly of phenanthridines from aryl ketone O-acetyloximes and alkynes through C-H bond activation	Tang, C.-Y., Wu, X.-Y., Sha, F., Zhang, F., Li, H.	<i>Tetrahedron Letters</i>	55	2014	1036
97	Hydrogen-bond-assisted controlled C-H functionalization via adaptive	Kim, H. J.; Ajitha, M. J.; Lee, Y.; Ryu, J.; Kim, J.; Lee, Y.; Jung, Y.; Chang,	<i>Journal of the American Chemical Society</i>	136	2014	1132

	recognition of a purine directing group	S.				
98	Nickel-catalyzed direct arylation of C(sp ³)-H bonds in aliphatic amides via bidentate-chelation assistance	Aihara, Y., Chatani, N.	<i>Journal of the American Chemical Society</i>	136	2014	898
99	Straightforward assembly of benzoxepines by means of a rhodium(III)-catalyzed C-H functionalization of o-vinylphenols	Seoane, A., Casanova, N., Quiñones, N., Mascareñas, J.L., Gulías, M.	<i>Journal of the American Chemical Society</i>	136	2014	834
100	Ruthenium catalyzed desymmetrization of diazabicyclic olefins to access heteroaryl substituted cyclopentenes through C-H activation of phenylazoles	Aparna, P. S.; Prabha, B.; Prakash, P.; Jijy, E.; Varma, R. L.; Radhakrishnan, K. V.	<i>Tetrahedron Letters</i>	55	2014	865
101	Copper/silver-mediated cascade reactions for the construction of 2-sulfonylbenzo[b]furans from trans-2-hydroxycinnamic acids and sodium sulfonates	Authors of Document Li, H.-S., Liu, G.	<i>Journal of Organic Chemistry</i>	79	2014	509
102	Cu-catalyzed conversion of propargyl acetates to α,β -unsaturated amides via ketenimine formation with sulfonyl azides	Kumar, Y.K., Kumar, G.R., Reddy, M.S.	<i>Journal of Organic Chemistry</i>	79	2014	823
103	Stereoselective nucleophilic fluoromethylation of aryl ketones: Dynamic kinetic resolution of chiral α -fluoro carbanions	Shen, X., Miao, W., Ni, C., Hu, J.	<i>Angewandte Chemie - International Edition</i>	53	2014	775
104	Ruthenium-catalyzed ortho-selective C-H alkenylation of aromatic compounds with alkenyl esters and ethers	Ogiwara, Y.; Tamura, M.; Kochi, T.; Matsuura, Y.; Chatani, N.; Kakiuchi, F.	<i>Organometallics</i>	33	2014	402
105	C-H nitrogenation and oxygenation by ruthenium catalysis	Thirunavukkarasu, V.S., Kozhushkov, S.I., Ackermann, L.	<i>Chemical Communications</i>	50	2014	29
106	Recent advances in C-H functionalizations assisted by removable and/or modifiable directing groups	Zhang, W., Zhang, J., Liu, Y.	<i>Chinese Journal of Organic Chemistry</i>	34	2014	36
107	Five-membered ring systems: Furans and benzofurans	Peng, X.-S., Fan, R., Wu, J.	<i>Progress in Heterocyclic Chemistry</i>	26	2014	193
108	Synthesis of 3-exo-arylhexahydroindoles via sequential gold(I)-catalyzed claisen-type rearrangement-epimerization reactions of cis-4-[N-Tosyl-N-(3-arylprop-2-ynyl)amino]cyclohex-2-en-1-ols	Liang, C.-J., Jiang, X.-Y., Yeh, M.-C.P.	<i>Synthesis (Germany)</i>	46	2014	2220
109	Metal-free sequential reaction via a propargylation, annulation and isomerization sequence for the one-pot synthesis of 2,3-disubstituted benzofurans	Li, W.-T., Nan, W.-H., Luo, Q.-L.	<i>RSC Advances</i>	4	2014	34774
110	Benzylamine as an arylcarboxy surrogate: A copper catalysed o-benzoylation of 2-	Behera, A., Rout, S.K., Guin, S., Patel, B.K.	<i>RSC Advances</i>	4	2014	55115

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111	[Au]/[Pd] multicatalytic processes: Direct one-pot access to benzo[c]chromenes and benzo[b]furans	Oonishi, Y.; Suarez, A. G.; Martin, A. R.; Makida, Y.; Slawin, A. M. Z.; Nolan, S. P.	Chemistry - A European Journal	20	2014	13507
112	Some recent advances in transition-metal-catalyzed ortho SP ² C-H functionalization using Ru, Rh, and Pd	Rao, Y., Shan, G., Yang, X.	<i>Science China Chemistry</i>	57	2014	930
113	Ruthenium(II)-catalyzed C-H activation/C-N bond formation via in situ generated iminophosphorane as the directing group: Construction of annulated pyridin-2(1H)-ones	Arigela, R.K., Kumar, R., Joshi, T., Mahar, R., Kundu, B.	<i>RSC Advances</i>	4	2014	57749
114	Selective approach to thioesters and thioethers via sp ³ C-H activation of methylarenes	Feng, J., Lu, G.-P., Cai, C.	<i>RSC Advances</i>	4	2014	54409
115	Energetic salts prepared from phenolate derivatives	Srinivas, D., Ghule, V.D., Muralidharan, K.	<i>New Journal of Chemistry</i>	38	2014	3699
116	Microwave assisted copper triflate-catalyzed rapid hydration of aryl acetylenes	Jha, M., Shelke, G.M., Pericherla, K., Kumar, A.	<i>Tetrahedron Letters</i>	55	2014	4814
117	Gold(I)-catalyzed hydration of alkynylphosphonates: Efficient access to β -ketophosphonates	Xie, L.; Yuan, R.; Wang, R.; Peng, Z.; Xiang, J.; He, W.	<i>European Journal of Organic Chemistry</i>	2014	2014	2668
118	Generation of gold carbenes in water: Efficient intermolecular trapping of the α -oxo gold carbenoids by indoles and anilines	Li, L.; Shu, C.; Zhou, B.; Yu, Y.-F.; Xiao, X.-Y.; Ye, L.-W.	<i>Chemical Science</i>	5	2014	4057
119	NHC-gold(I) catalysed [4 + 2] cycloaddition-acyclic addition of dialkyl substituted propargylic esters with 1,3-diphenylisobenzofuran: Synthesis of novel benzo[c]fluorenes and substituted dienes	Kotikalapudi, R., Siva Kumari, A.L., Swamy, K.C.K.	<i>RSC Advances</i>	4	2014	17717
120	Five membered ring systems: With more than one N atom	Yet, L.	<i>Progress in Heterocyclic Chemistry</i>	26	2014	237
121	Effective transformation of alkynylphosphonates into β -Ketophosphonates with a Gold(I) catalyst	Kaijian, L.; Hongwei, L.; Wenge, W.; Lijuan, O.; Jingjing, W.; Bonian, H.	<i>Chinese Journal of Organic Chemistry</i>	34	2014	2007
122	Two-step, practical, and diversity-oriented synthesis of multisubstituted benzofurans from phenols through Pummerer annulation followed by cross-coupling	Murakami, K., Yorimitsu, H., Osuka, A.	<i>Bulletin of the Chemical Society of Japan</i>	87	2014	1349
123	Palladium-catalyzed trifluoroacetate-promoted mono-arylation of the β -methyl group of alanine at room temperature: Synthesis of β -arylated α -amino acids through sequential C-H functionalization	Wang, B., Nack, W.A., He, G., Zhang, S.-Y., Chen, G.	<i>Chemical Science</i>	5	2014	3952

124	π -extended DPCB for activation-free homogeneous gold catalysis	Ito, S., Nanko, M., Mikami, K.	<i>ChemCatChem</i>	6	2014	2292
125	One-pot sequential catalytic hydration of alkynes and α -alkylation with alcohols for the synthesis of α -alkylated ketones	Ma, J., Wang, N., Li, F.	<i>Asian Journal of Organic Chemistry</i>	3	2014	940
126	A mild synthesis of new aryl vinyl ethers and diethyl 1-[(alkyl)(cyano)methyl]vinylphosphonates via the substitution of a 2,3-difunctional allyl bromide	Fray, A., Ben Kraïem, J., Arfaoui, A., Amri, H.	<i>The Scientific World Journal</i>	2014	2014	260325
127	Pd(II)-catalyzed C(sp ²)-H hydroxylation with R ² (O)P-coordinating group	Zhang, H.-Y., Yi, H.-M., Wang, G.-W., Yang, B., Yang, S.-D.	<i>Organic Letters</i>	15	2013	6186
128	Direct bis-arylation of cyclobutanecarboxamide via double C-H activation: An auxiliary-aided diastereoselective Pd-catalyzed access to trisubstituted cyclobutane scaffolds having three contiguous stereocenters and an all-cis stereochemistry	Parella, R., Gopalakrishnan, B., Babu, S.A.	<i>Journal of Organic Chemistry</i>	78	2013	11911
129	Water-soluble Gold(I) and Gold(III) complexes with sulfonated N-heterocyclic carbene ligands: Synthesis, characterization, and application in the catalytic cycloisomerization of γ -alkynoic acids into enol-lactones	Mendivil, E. T.; Toullec, P. Y.; Borge, J.; Conejero, S.; Michelet, V.; Cadierno, V.	<i>ACS Catalysis</i>	3	2013	3086
130	Transition metal-free regioselective C-3 amidation of indoles with N-fluorobenzenesulfonimide	Liu, H.-H., Wang, Y., Deng, G., Yang, L.	<i>Advanced Synthesis and Catalysis</i>	355	2013	3369
131	Palladium-catalyzed synthesis of benzofurans and coumarins from phenols and olefins	Sharma, U., Naveen, T., Maji, A., Manna, S., Maiti, D.	<i>Angewandte Chemie - International Edition</i>	52	2013	12669
132	Ru(II)-catalyzed vinylative dearomatization of naphthols via a C(sp ²)-H bond activation approach	Nan, J.; Zuo, Z.; Luo, L.; Bai, L.; Zheng, H.; Yuan, Y.; Liu, J.; Luan, X.; Wang, Y.	<i>Journal of the American Chemical Society</i>	135	2013	17306
133	Ambient gold-catalyzed O-vinylation of cyclic 1,3-diketone: A vinyl ether synthesis	Xi, Y., Dong, B., Shi, X.	<i>Beilstein Journal of Organic Chemistry</i>	9	2013	2337
134	Palladium-catalyzed oxidation of benzyl ketones to synthesis of α -acetoxy ketones using molecular oxygen	Chen, Z.-W., Ye, D.-N., Ye, M., Liu, L.-X.	<i>Chemistry Letters</i>	42	2013	1388
135	Synthesis and structural characterization of water-soluble gold(I) N-heterocyclic carbene complexes. An X-ray absorption fine structure spectroscopy (XAFS) study	Fernández, G.A., Picco, A.S., Ceolín, M.R., Chopa, A.B., Silbestri, G.F.	<i>Organometallics</i>	32	2013	6315
136	Catalytic functionalization of C(sp ²)-H and C(sp ³)-H bonds by using bidentate directing groups	Rouquet, G., Chatani, N.	<i>Angewandte Chemie - International Edition</i>	52	2013	11726

137	Iridium-catalyzed direct arene C-H bond amidation with sulfonyl- and aryl azides	Lee, D., Kim, Y., Chang, S.	<i>Journal of Organic Chemistry</i>	78	2013	11102
138	Flexible and practical synthesis of anthracenes through gold-catalyzed cyclization of o-alkynyldiarylmethanes	Shu, C., Chen, C.-B., Chen, W.-X., Ye, L.-W.	<i>Organic Letters</i>	15	2013	5542
139	Rh-catalyzed diarylamine synthesis by intermolecular C-H amination of heteroarylarenes	Tang, C., Yuan, Y., Cui, Y., Jiao, N.	<i>European Journal of Organic Chemistry</i>	2013	2013	7480
140	Palladium-catalyzed oxidative acetoxylation of benzylic C-H bond using bidentate auxiliary	Ju, L., Yao, J., Wu, Z., Liu, Z., Zhang, Y.	<i>Journal of Organic Chemistry</i>	78	2013	10821
141	Rhodium-catalyzed oxidative annulation of sulfoximines and alkynes as an approach to 1,2-benzothiazines	Dong, W., Wang, L., Parthasarathy, K., Pan, F., Bolm, C.	<i>Angewandte Chemie - International Edition</i>	52	2013	11573
142	Ruthenium-catalyzed oxidative ortho-benzoxylation of acetanilides with aromatic acids	Padala, K., Jeganmohan, M.	<i>Chemical Communications</i>	49	2013	9651
143	Gold-catalyzed glycosidation for the synthesis of trisaccharides by applying the armed-disarmed strategy	Kayastha, A.K., Hotha, S	<i>Beilstein Journal of Organic Chemistry</i>	9	2013	2147
144	Rhodium(III)-catalyzed intermolecular N-chelator-directed aromatic C-H amidation with amides	Zhao, H., Shang, Y., Su, W.	<i>Organic Letters</i>	15	2013	5106
145	Acid, silver, and solvent-free gold-catalyzed hydrophenoxylation of internal alkynes	Richard, M. E.; Fraccica, D. V.; Garcia, K. J.; Miller, E. J.; Ciccarelli, R. M.; Holahan, E. C.; Resh, V. L.; Shah, A.; Findeis, P. M.; Stockland Jr., R. A.	<i>Beilstein Journal of Organic Chemistry</i>	9	2013	2002
146	One-pot transformation of alkynes into alcohols and amines with formic acid	Li, J., Wang, C., Xue, D., Wei, Y., Xiao, J.	<i>Green Chemistry</i>	15	2013	2685
147	Recent advanced strategies for extending the nitrogen chain in the synthesis of high nitrogen compounds	Tang, Y., Yang, H., Cheng, G.	<i>Synlett</i>	24	2013	2183
148	Rhodium-catalyzed direct annulation of aldehydes with alkynes leading to indenones: Proceeding through in situ directing group formation and removal	Chen, S., Yu, J., Jiang, Y., Chen, F., Cheng, J.	<i>Organic Letters</i>	15	2013	4753
149	MnO ₂ promoted sequential C-O and C-N bond formation via C-H activation of methylarenes: A new approach to amides	Vanjari, R., Guntreddi, T., Singh, K.N.	<i>Organic Letters</i>	15	2013	4908
150	Direct arylation of primary and secondary sp ³ C-H bonds with diarylhyperiodonium salts via Pd catalysis	Pan, F., Shen, P.-X., Zhang, L.-S., Wang, X., Shi, Z.-J.	<i>Organic Letters</i>	15	2013	4758
151	Mechanism of gold (I)-catalyzed double migration-benzannulation cascade toward naphthalenes: Deprotonation/protonation mediated by water	Yang, L., Fang, R.	<i>Journal of Molecular Catalysis A: Chemical</i>	379	2013	197

152	Kinetic resolution of propargylic alcohols via stereoselective acylation catalyzed by lipase PS-30	Chen, P., Zhu, X.	<i>Journal of Molecular Catalysis B: Enzymatic</i>	97	2013	184
153	Gold(I) catalysed cycloisomerisation of β -hydroxy propargylic esters to dihydropyrans/2H-pyrans via allene intermediates	Kotikalapudi, R., Kumara Swamy, K.C.	<i>Tetrahedron</i>	69	2013	8002
154	Formation and stability of 3-5 atom gold clusters from gold complexes during the catalytic reaction: Dependence on ligands and counteranions	Oliver-Meseguer, J., Leyva-Pérez, A., Al-Resayes, S.I., Corma, A.	<i>Chemical Communications</i>	49	2013	7782
155	Hydrophenoxylation of alkynes by cooperative gold catalysis	Oonishi, Y., Gómez-Suárez, A., Martin, A.R., Nolan, S.P.	<i>Angewandte Chemie - International Edition</i>	52	2013	9767
156	Aryl-substituted cyclopropyl acetylenes as sensitive mechanistic probes in the gold-catalyzed hydration of alkynes. comparison to the Ag(I)-, Hg(II)-, and Fe(III)-catalyzed processes	Velegraki, G., Stratakis, M.	<i>Journal of Organic Chemistry</i>	78	2013	8880
157	1,2,3-Triazoles as versatile directing group for selective sp ² and sp ³ C-H activation: Cyclization vs substitution	Ye, X.; He, Z.; Ahmed, T.; Weise, K.; Akhmedov, N. G.; Petersen, J. L.; Shi, X.	<i>Chemical Science</i>	4	2013	3712
158	Isoquinoline N-oxide synthesis under Pd-Catalysed C-H activation/annulation processes	Li, B., Jiao, P., Zhong, H., Huang, J.	<i>Synlett</i>	24	2013	2431
159	Facile synthesis of unsymmetrical acridines and phenazines by a Rh(III)-catalyzed amination/cyclization/aromatization cascade	Lian, Y., Hummel, J.R., Bergman, R.G., Ellman, J.A.	<i>Journal of the American Chemical Society</i>	135	2013	12548
160	Ir(III)-catalyzed mild C-H amidation of arenes and alkenes: An efficient usage of acyl azides as the nitrogen source	Ryu, J., Kwak, J., Shin, K., Lee, D., Chang, S.	<i>Journal of the American Chemical Society</i>	135	2013	12861
161	Pd-catalyzed tandem C-H azidation and N-N bond formation of arylpyridines: A direct approach to pyrido[1,2-b]indazoles	Zheng, Q.-Z., Feng, P., Liang, Y.-F., Jiao, N.	<i>Organic Letters</i>	15	2013	4262
162	Gold carbenes from substituted propargyl acetates: Intramolecular ene-type reactions to 2-acetoxynaphthalene derivatives	Oh, C.H., Kim, J.H., Piao, L., Yu, J., Kim, S.Y.	<i>Chemistry - A European Journal</i>	19	2013	10501
163	Regioselective opening of chalcone epoxides with nitrogen heterocycles using indium(III) chloride as an efficient catalyst	Konduru, N.K., Ahmed, N.	<i>Synthetic Communications</i>	43	2013	2008
164	Highly efficient AgBF ₄ -catalyzed synthesis of methyl ketones from terminal alkynes	Chen, Z.-W., Ye, D.-N., Qian, Y.-P., Ye, M., Liu, L.-X.	<i>Tetrahedron</i>	69	2013	6116
165	Catalyst-controlled divergent C-H functionalization of unsymmetrical 2-aryl cyclic 1,3-dicarbonyl compounds	Dooley, J.D., Reddy Chidipudi, S., Lam, H.W.	<i>Journal of the American Chemical Society</i>	135	2013	10829

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166	Development of chelation-assisted transformations involving C-H bond activation: Utilization of a bidentate directing group	Chatani, N.	<i>Yuki Gosei Kagaku Kyokaishi/Journal of Synthetic Organic Chemistry</i>	71	2013	406
167	Synthesis and characterization of various photosensitive copper(II) complexes with 5-(1-methylhydrazinyl)-1H-tetrazole as ligand and perchlorate, nitrate, dinitramide, and chloride as anions	Joas, M., Klapötke, T.M., Stierstorfer, J., Szimhardt, N.	<i>Chemistry - A European Journal</i>	19	2013	9995
168	Rhodium(III)-catalyzed C-H activation and amidation of arenes using N-arenesulfonated imides as amidating reagents	Yu, S., Wan, B., Li, X.	<i>Organic Letters</i>	15	2013	3706
169	Expedient C-H amidations of heteroaryl arenes catalyzed by versatile ruthenium(II) catalysts	Thirunavukkarasu, V.S., Raghuvanshi, K., Ackermann, L.	<i>Organic Letters</i>	15	2013	3286
170	Ru(II)-catalyzed intermolecular C-H amidation of weakly coordinating ketones	Zheng, Q.-Z., Liang, Y.-F., Qin, C., Jiao, N.	<i>Chemical Communications</i>	49	2013	5654
171	Methane CH activation by palladium complexes with chelating bis(NHC) ligands: A DFT study	Munz, D., Meyer, D., Strassner, T.	<i>Organometallics</i>	32	2013	3469
172	Rh[III]-catalyzed C-H amidation using aryloxycarbamates to give N-Boc protected arylamines	Grohmann, C., Wang, H., Glorius, F.	<i>Organic Letters</i>	15	2013	3014
173	RhIII/CuI-cocatalyzed synthesis of 1H-indazoles through C-H amidation and N-N bond formation	Yu, D.-G., Suri, M., Glorius, F.	<i>Journal of the American Chemical Society</i>	135	2013	8802
174	Ruthenium-catalyzed direct C-H amidation of arenes including weakly coordinating aromatic ketones	Kim, J., Kim, J., Chang, S.	<i>Chemistry - A European Journal</i>	19	2013	7328
175	Ruthenium-catalyzed cyclocarbonylation of aliphatic amides through the regioselective activation of unactivated C(sp ³)-H bonds	Hasegawa, N.; Shibata, K.; Charra, V.; Inoue, S.; Fukumoto, Y.; Chatani, N.	<i>Tetrahedron</i>	69	2013	4466
176	Copper-catalyzed regioselective reaction of internal alkynes and diaryliodonium salts	Xu, Z.-F., Cai, C.-X., Liu, J.-T.	<i>Organic Letters</i>	15	2013	2096
177	Ruthenium-catalyzed ortho-C-H bond alkylation of aromatic amides with α,β -unsaturated ketones via bidentate-chelation assistance	Rouquet, G., Chatani, N.	<i>Chemical Science</i>	4	2013	2201
178	Palladium(II)-catalyzed regioselective arylation of naphthylamides with aryl iodides utilizing a quinolinamide bidentate system	Huang, L., Li, Q., Wang, C., Qi, C.	<i>Journal of Organic Chemistry</i>	78	2013	3030
179	Development of a gold-multifaceted catalysis approach to the synthesis of	Ngwerume, S., Lewis, W., Camp, J.E.	<i>Journal of Organic Chemistry</i>	78	2013	920

	highly substituted pyrroles: Mechanistic insights via Huisgen cycloaddition studies					
180	Ruthenium-catalyzed direct arylation of C-H bonds in aromatic amides containing a bidentate directing group: Significant electronic effects on arylation	Aihara, Y., Chatani, N.	<i>Chemical Science</i>	4	2013	664
181	Hydration of terminal alkynes catalyzed by water-soluble cobalt porphyrin complexes	Tachinami, T., Nishimura, T., Ushimaru, R., Noyori, R., Naka, H.	<i>Journal of the American Chemical Society</i>	135	2013	50
182	Gold-catalyzed O-H bond addition to unsaturated organic molecules	Huguet, N., Echavarren, A.M.	<i>Topics in Organometallic Chemistry</i>	43	2013	291
183	Ruthenium-catalyzed C-H bond oxygenations with weakly coordinating ketones	Thirunavukkarasu, V.S., Ackermann, L.	<i>Organic Letters</i>	14	2012	6206
184	Small gold clusters formed in solution give reaction turnover numbers of 107 at room temperature	Oliver-Meseguer, J., Cabrero-Antonino, J.R., Domínguez, I., Leyva-Pérez, A., Corma, A.	<i>Science</i>	338	2012	1452
185	Chirality transfer and memory of chirality in gold-catalyzed reactions	Patil, N.T.	<i>Chemistry - An Asian Journal</i>	7	2012	2186
186	Transition metal-catalyzed addition of C-, N- and O-nucleophiles to unactivated C-C multiple bonds	Patil, N.T., Kavthe, R.D., Shinde, V.S.	<i>Tetrahedron</i>	68	2012	8079
187	Gold in total synthesis: Alkynes as carbonyl surrogates	Brenzovich Jr., W.E.	<i>Angewandte Chemie - International Edition</i>	51	2012	8933
188	Selected Diastereoselective Reactions: Gold Catalyzed Cyclizations	Hashmi, A.S.K.	<i>Comprehensive Chirality</i>	2	2012	685
189	Mechanism of the N-protecting group dependent annulations of 3-aryloxy alkynyl indoles under gold catalysis: A computational study	Cheng, B., Huang, G., Xu, L., Xia, Y.	<i>Organic and Biomolecular Chemistry</i>	10	2012	4417
190	"Silver effect" in gold(I) catalysis: An overlooked important factor	Wang, D.; Cai, R.; Sharma, S.; Jirak, J.; Thummanapelli, S. K.; Akhmedov, N. G.; Zhang, H.; Liu, X.; Petersen, J. L.; Shi, X.	<i>Journal of the American Chemical Society</i>	134	2012	9012
191	Copper-catalyzed coupling of (E)-bromostilbene with phenols/azole: ESI-MS detection of intermediates by using an ionically-tagged ligand	Limberger, J., Leal, B.C., Back, D.F., Dupont, J., Monteiro, A.L.	<i>Advanced Synthesis and Catalysis</i>	354	2012	1429
192	Gold catalysis in total synthesis - An update	Rudolph, M., Hashmi, A.S.K.	<i>Chemical Society Reviews</i>	41	2012	2448
193	Palladium-catalyzed intermolecular coupling of 2-silylaryl bromides with alkynes: Synthesis of benzosiloles and heteroarene-fused siloles by catalytic cleavage of the C(sp ³)-Si bond	Liang, Y., Geng, W., Wei, J., Xi, Z.	<i>Angewandte Chemie - International Edition</i>	51	2012	1943
194	Similarities and differences between the "relativistic" triad gold, platinum, and mercury in catalysis	Leyva-Pérez, A., Corma, A.	<i>Angewandte Chemie - International Edition</i>	51	2012	614

195	Gold/copper-catalyzed activation of the aci-form of nitromethane in the synthesis of methylene-bridged bis-1,3-dicarbonyl compounds	Balamurugan, R., Manojveer, S.	<i>Chemical Communications</i>	47	2011	11143
196	Cationic gold catalyzes ω -bromination of terminal alkynes and subsequent hydroaddition reactions	Leyva-Pérez, A., Rubio-Marqués, P., Al-Deyab, S.S., Al-Resayes, S.I., Corma, A.	<i>ACS Catalysis</i>	1	2011	601
197	Ruthenium complexes of $\kappa(P)$ - and $\kappa(P)\text{-}\eta^6$ -coordinated KITPHOS monophosphines: Efficient catalysts for the direct ortho arylation of 2-phenylpyridine and N-phenylpyrazole with aryl chlorides	Doherty, S.; Knight, J. G.; Addyman, C. R.; Smyth, C. H.; Ward, N. A. B.; Harrington, R. W.	<i>Organometallics</i>	30	2011	6010
198	Silver and gold	Meyer, N., Schuh, E., Mohr, F.	<i>Annual Reports on the Progress of Chemistry - Section A</i>	107	2011	233
199	Gold(I)-catalyzed tandem alkoxylation/lactonization of γ -hydroxy- α,β -acetylenic esters	Ramón, R.S., Pottier, C., Gómez-Suárez, A., Nolan, S.P.	<i>Advanced Synthesis and Catalysis</i>	353	2011	1575
200	Gold-catalyzed cyclizations: A comparative study of ortho,ortho'-substituted KITPHOS monophosphines with their biaryl monophosphine counterpart SPHOS	Hashmi, A. S. K.; Loos, A.; Doherty, S.; Knight, J. G.; Robson, K. J.; Rominger, F.	<i>Advanced Synthesis and Catalysis</i>	353	2011	749
201	Gold-catalysed rearrangement of O-vinyl oximes for the synthesis of highly substituted pyrroles	Ngwerume, S., Camp, J.E.	<i>Chemical Communications</i>	47	2011	1857
202	Gold catalysis: Alkyl migration in the addition of alcohols to nitriles	Ibrahim, N., Hashmi, A.S.K., Rominger, F.	<i>Advanced Synthesis and Catalysis</i>	353	2011	461
203	Efficient silver-free gold(I)-catalyzed hydration of alkynes at low catalyst loading	Nun, P., Ramón, R.S., Gaillard, S., Nolan, S.P.	<i>Journal of Organometallic Chemistry</i>	696	2011	7
204	Intramolecular nucleophilic attack at silicon in <i>o</i> -silylbenzyl alcohols. Generation of allyl and benzyl anion equivalents	Hudrlik, P.F., Hudrlik, A.M., Jeilani, Y.A.	<i>Tetrahedron</i>	67	2011	10089
205	Improved Hiyama cross-coupling reactions using HOMSi®	Marcuccio, S.M., Epa, R., Moslmani, M., Hughes, A.B.	<i>Tetrahedron Letters</i>	52	2011	7178
206	Siloles. Part 2: Silaindenes (Benzosiloles) and Silafluorenes (Dibenzosiloles): Synthesis, Characterization, and Applications	Corey, J.Y.	<i>Advances in Organometallic Chemistry</i>	59	2011	181
207	Lipase-catalyzed kinetic resolution of aryltrimethylsilyl chiral alcohols	Palmeira, D.J., Abreu, J.C., Andrade, L.H.	<i>Molecules</i>	16	2011	9697
208	Silicon-based cross-coupling reactions through intramolecular activation	Nakao, Y., Hiyama, T.	<i>Journal of Synthetic Organic Chemistry</i>	69	2011	1221
209	Silicon-based cross-coupling reaction: An environmentally benign version	Nakao, Y., Hiyama, T.	<i>Chemical Society Reviews</i>	40	2011	4893
210	Rhodium-catalyzed synthesis of germales via	Tobisu, M., Baba, K., Chatani, N.	<i>Organic Letters</i>	13	2011	3282

	the activation of carbon-germanium bonds					
211	Nickel-catalysed cross-coupling reaction of aryl(trialkyl)silanes with aryl chlorides and tosylates	Tang, S., Takeda, M., Nakao, Y., Hiyama, T.	<i>Chemical Communications</i>	47	2011	307
212	Rhodium(I)-catalyzed 1,4-silicon shift of unactivated silanes from aryl to alkyl: Enantioselective synthesis of indanol derivatives	Seiser, T., Cramer, N.	<i>Angewandte Chemie - International Edition</i>	49	2010	10163
213	Alkenylation reactions of heteroarenes by transition-metal catalysts	Rossi, R., Bellina, F., Lessi, M.	<i>Synthesis</i>	24	2010	4131
214	Stereo- and regioselective gold-catalyzed hydroamination of internal alkynes with dialkylamines	Hesp, K.D., Stradiotto, M.	<i>Journal of the American Chemical Society</i>	132	2010	18026
215	Oxidation of dihydrazones of diaryl α -diketones to diarylacetylenes using sodium periodate	Takale, B.S., Telvekar, V.N.	<i>Chemistry Letters</i>	39	2010	1279
216	Palladium-catalyzed modular assembly of electron-rich alkenes, dienes, trienes, and enynes from (E)-1,2-dichlorovinyl phenyl ether	Geary, L.M., Hultin, P.G.	<i>Journal of Organic Chemistry</i>	75	2010	6354
217	Efficient cycloisomerization of propargyl amides by electrophilic gold(I) complexes of KITPHOS monophosphines: A comparative study	Doherty, S., Knight, J. G.; Hashmi, A. S. K., Smyth, C. H., Ward, N. A. B., Robson, K. J., Tweedley, S., Harrington, R. W., Clegg, W.	<i>Organometallics</i>	29	2010	4139
218	Homogeneous gold catalysis beyond assumptions and proposals-characterized intermediates	Stephen, A., Hashmi, K.	<i>Angewandte Chemie - International Edition</i>	49	2010	5232

Annexure -4

